

APPENDIX P-1.

Dependent Variable-Covariate Associations for the Pulmonary Assessment

This appendix contains results of tests of associations between each dependent variable and candidate covariates for the adjusted analysis of each dependent variable. Pearson's chi-square test (continuity-adjusted for 2×2 tables) is used for the significance testing of the associations between each discrete dependent variable and the candidate covariate. When a candidate covariate is continuous in nature (for example, age), the covariate is discretized prior to the analysis of the discrete dependent variable. Pearson's correlation coefficient is used for significance testing of the associations between each continuous dependent variable and a continuous candidate covariate. When a candidate covariate is discrete in nature, means (transformed back to the original scale, if necessary) are presented and an analysis of variance is used to investigate the difference between the means.

Table P-1-1.
Dependent Variable-Covariate Associations for the Pulmonary Assessment

Dependent Variable	Level	Age			Race		
		Born ≥1942	Born <1942	p-Value	Black	Non-Black	p-Value
Asthma	Yes	(n=950) 3.6%	(n=1,265) 2.9%	0.457	(n=130) 2.3%	(n=2,085) 3.3%	0.732
Bronchitis	Yes	(n=943) 16.9%	(n=1,236) 18.5%	0.342	(n=129) 14.0%	(n=2,050) 18.1%	0.289
Pneumonia	Yes	(n=937) 8.5%	(n=1,192) 12.1%	0.010	(n=128) 14.1%	(n=2,001) 10.3%	0.231
Thorax and Lung Abnormalities	Yes	(n=956) 8.5%	(n=1,227) 14.8%	<0.001	(n=131) 13.0%	(n=2,102) 12.0%	0.855
X Ray Interpretation	Abnormal	(n=955) 10.0%	(n=1,277) 16.1%	<0.001	(n=131) 10.7%	(n=2,101) 13.6%	0.412
FVC (percent of predicted)		(n=2,231) r=-0.078		<0.001	(n=131) x̄=88.0	(n=2,100) x̄=101.1	<0.001
FEV ₁ (percent of predicted)		(n=2,231) r=-0.213		<0.001	(n=131) x̄=86.8	(n=2,100) x̄=95.5	<0.001
Ratio of Observed FEV ₁ to Observed FVC ^a		(n=2,231) r=0.326		<0.001	(n=131) x̄=0.797	(n=2,100) x̄=0.759	<0.001
Loss of Vital Capacity	None	(n=955) 95.2%	(n=1,276) 91.0%	0.001	(n=131) 76.3%	(n=2,100) 93.8%	<0.001
	Mild	4.2%	7.4%		17.6%	5.3%	
	Mod. or Sev.	0.6%	1.6%		6.1%	0.9%	
Obstructive Abnormality	None	(n=955) 73.5%	(n=1,276) 44.1%	<0.001	(n=131) 58.8%	(n=2,100) 56.6%	0.521
	Mild	23.8%	45.6%		36.6%	36.2%	
	Mod. or Sev.	2.7%	10.3%		4.6%	7.2%	

^a Means transformed from natural logarithm (1-X) scale; correlations based on natural logarithm (1-X) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table P-1-1. (Continued)
Dependent Variable-Covariate Associations for the Pulmonary Assessment

Dependent Variable	Level	Occupation			p-Value
		Officer	Enlisted Flyer	Enlisted Groundcrew	
Asthma	Yes	(n=864) 3.4%	(n=362) 1.9%	(n=989) 3.5%	0.316
Bronchitis	Yes	(n=845) 15.9%	(n=354) 21.5%	(n=980) 18.2%	0.063
Pneumonia	Yes	(n=819) 11.4%	(n=346) 11.3%	(n=964) 9.5%	0.408
Thorax and Lung Abnormalities	Yes	(n=869) 8.5%	(n=365) 17.0%	(n=999) 13.4%	<0.001
X Ray Interpretation	Abnormal	(n=869) 12.4%	(n=365) 16.4%	(n=998) 13.2%	0.163
FVC (percent of predicted)		(n=868) \bar{x} =102.0	(n=365) \bar{x} =99.1	(n=998) \bar{x} =99.3	<0.001
FEV ₁ (percent of predicted)		(n=868) \bar{x} =96.3	(n=365) \bar{x} =91.8	(n=998) \bar{x} =94.9	<0.001
Ratio of Observed FEV ₁ to Observed FVC ^a		(n=868) \bar{x} =0.754	(n=365) \bar{x} =0.748	(n=998) \bar{x} =0.773	<0.001
Loss of Vital Capacity	None	(n=868) 94.1%	(n=365) 91.2%	(n=998) 92.2%	0.269
	Mild	5.1%	6.9%	6.5%	
	Mod. or Sev.	0.8%	1.9%	1.3%	
Obstructive Abnormality	None	(n=868) 53.8%	(n=365) 47.1%	(n=998) 62.7%	<0.001
	Mild	39.6%	43.0%	30.9%	
	Mod. or Sev.	6.6%	9.9%	6.4%	

^a Means transformed from natural logarithm (1-X) scale; correlations based on natural logarithm (1-X) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table P-1-1. (Continued)
Dependent Variable-Covariate Associations for the Pulmonary Assessment

Dependent Variable	Level	Current Cigarette Smoking (cigarettes/day)				p-Value
		0-Never	0-Former	>0-20	>20	
Asthma		--	--	--	--	--
Bronchitis		--	--	--	--	--
Pneumonia		--	--	--	--	--
Thorax and Lung Abnormalities	Yes	(n=612) 2.1%	(n=1,057) 6.7%	(n=350) 29.4%	(n=212) 38.7%	<0.001
X Ray Interpretation	Abnormal	(n=611) 11.1%	(n=1,057) 14.1%	(n=350) 14.0%	(n=212) 16.0%	0.211
FVC (percent of predicted)			(n=2,229) r=-0.107			<0.001
FEV ₁ (percent of predicted)			(n=2,229) r=-0.210			<0.001
Ratio of Observed FEV ₁ to Observed FVC ^a			(n=2,229) r=0.192			<0.001
Loss of Vital Capacity		(n=611)	(n=1,057)	(n=349)	(n=212)	0.001
	None	94.9%	93.6%	88.8%	89.1%	
	Mild	4.1%	5.4%	8.6%	10.4%	
	Mod. or Sev.	1.0%	1.0%	2.6%	0.5%	
Obstructive Abnormality		(n=611)	(n=1,057)	(n=349)	(n=212)	<0.001
	None	77.4%	54.0%	43.3%	33.0%	
	Mild	20.6%	38.7%	46.1%	52.8%	
	Mod. or Sev.	2.0%	7.3%	10.6%	14.2%	

^a Means transformed from natural logarithm (1-X) scale; correlations based on natural logarithm (1-X) versus covariate.

--: Covariate not applicable for dependent variable.

Note: Correlations (r) are based on total sample and are not category specific.

Table P-1-1. (Continued)
Dependent Variable-Covariate Associations for the Pulmonary Assessment

Dependent Variable	Level	Lifetime Cigarette Smoking History (pack-years)			p-Value
		0	>0 - 10	>10	
Asthma	Yes	(n=607) 2.6%	(n=674) 4.6%	(n=931) 2.6%	0.049
Bronchitis	Yes	(n=601) 13.5%	(n=664) 16.7%	(n=911) 21.4%	<0.001
Pneumonia	Yes	(n=588) 9.4%	(n=655) 8.1%	(n=883) 13.1%	0.003
Thorax and Lung Abnormalities	Yes	(n=612) 2.1%	(n=682) 9.2%	(n=936) 20.6%	<0.001
X Ray Interpretation	Abnormal	(n=611) 11.1%	(n=682) 12.0%	(n=936) 16.0%	0.009
FVC (percent of predicted)			(n=2,228) r=-0.149		<0.001
FEV ₁ (percent of predicted)			(n=2,228) r=-0.295		<0.001
Ratio of Observed FEV ₁ to Observed FVC ^a			(n=2,228) r=0.299		<0.001
Loss of Vital Capacity	None	(n=611) 94.9%	(n=681) 94.3%	(n=936) 90.3%	0.003
	Mild	4.1%	4.6%	8.3%	
	Mod. or Sev.	1.0%	1.2%	1.4%	
Obstructive Abnormality	None	(n=611) 77.4%	(n=681) 60.8%	(n=936) 40.3%	<0.001
	Mild	20.6%	34.1%	48.1%	
	Mod. or Sev.	2.0%	5.1%	11.6%	

^a Means transformed from natural logarithm (1-X) scale; correlations based on natural logarithm (1-X) versus covariate.

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Table P-1-1. (Continued)
Dependent Variable-Covariate Associations for the Pulmonary Assessment

Dependent Variable	Level	Body Fat			Industrial Chemicals Exposure		
		Lean or Normal: $\leq 25\%$	Obese: $> 25\%$	p-Value	No	Yes	p-Value
Asthma	Yes	(n=1,651) 3.1%	(n=564) 3.6%	0.694	(n=919) 2.8%	(n=1,296) 3.5%	0.469
Bronchitis	Yes	(n=1,622) 17.3%	(n=557) 19.2%	0.347	(n=905) 15.6%	(n=1,274) 19.4%	0.026
Pneumonia	Yes	(n=1,590) 10.1%	(n=539) 11.9%	0.270	(n=873) 11.1%	(n=1,256) 10.1%	0.504
Thorax and Lung Abnormalities	Yes	(n=1,663) 12.4%	(n=570) 11.2%	0.510	(n=922) 10.6%	(n=1,311) 13.1%	0.087
X Ray Interpretation	Abnormal	(n=1,662) 13.8%	(n=570) 12.3%	0.384	(n=922) 13.6%	(n=1,310) 13.4%	0.942
FVC (percent of predicted)		(n=2,231) $r=-0.209$		<0.001	(n=921) $\bar{x}=100.8$	(n=1,310) $\bar{x}=100.0$	0.165
FEV ₁ (percent of predicted)		(n=2,231) $r=-0.048$		0.024	(n=921) $\bar{x}=95.7$	(n=1,310) $\bar{x}=94.5$	0.107
Ratio of Observed FEV ₁ to Observed FVC ^a		(n=2,231) $r=-0.182$		<0.001	(n=921) $\bar{x}=0.761$	(n=1,310) $\bar{x}=0.762$	0.704
Loss of Vital Capacity	None	(n=1,662) 93.9%	(n=569) 89.5%	0.001	(n=921) 93.9%	(n=1,310) 92.0%	0.185
	Mild	5.2%	8.4%		5.2%	6.6%	
	Mod. or Sev.	0.9%	2.1%		0.9%	1.4%	
Obstructive Abnormality	None	(n=1,662) 55.1%	(n=569) 61.3%	0.023	(n=921) 57.0%	(n=1,130) 56.5%	0.246
	Mild	37.3%	33.2%		37.0%	35.7%	
	Mod. or Sev.	7.6%	5.5%		6.0%	7.8%	

^a Means transformed from natural logarithm (1-X) scale; correlations based on natural logarithm (1-X) versus covariate.

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